

LISTING OF THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below for the Examiner's convenience. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered). No claim has been amended herein.

Claim 1 (Previously Presented): A method of recording data on an optical disc, the method comprising:

encoding input data with an error correction code (ECC) to generate ECC encoded data in a plurality of ECC blocks, each ECC block having a predetermined size of rows and columns;

dividing each of the ECC blocks of the ECC encoded data further in row and column directions to form a plurality of partitions, each partition having a predetermined unit in row and column directions;

interleaving data from the plurality of the partitions by alternately extracting data from the partitions of each of the ECC blocks so that partitions from each of the ECC blocks are alternately selected such that progression through the partitions of each ECC block occurs diagonally to generate a first recording block;

modulating the first recording block; and

recording the modulated first recording block on the optical disc.

Claim 2 (Original): The method as claimed in claim 1, further comprising rearranging the first recording block to generate a second recording block.

Claim 3 (Original): The method as claimed in claim 2, wherein the first recording block is rearranged on a sector basis to generate the second recording block.

Claim 4 (Cancelled):

Claim 5 (Previously Presented): The method as claimed in claim 1, wherein the

dividing of the ECC blocks comprises:

dividing each of the ECC blocks in a column direction by a predetermined number of bytes into object blocks; and

dividing each of the object blocks in row and column directions by the predetermined number of bytes to generate the plurality of partitions such that each of the object blocks has a same number of units in both the row direction and the column direction.

Claim 6 (Previously Presented): The method as claimed in claim 5, wherein all of the data from the plurality of partitions are interleaved using a same algorithm.

Claim 7 (Previously Presented): The method as claimed in claim 1, wherein the interleaving the data comprises interleaving a predetermined number of bytes of the data from each ECC block to generate the first recording block.

Claim 8 (Previously Presented): The method as claimed in claim 1, wherein the dividing of the ECC blocks includes:

obtaining a common divisor d for $N1$ and $N2$ wherein the predetermined size of the ECC blocks is $N1 \times N2$ bytes where $N1$ and $N2$ are positive integers;

dividing each of the ECC blocks into units of d bytes in a column direction to generate $N2/d$ object blocks; and

dividing each of the object blocks into d portions in the column direction and a row direction to generate $d \times d$ of the partitions.

Claims 9-31 (Cancelled):

Claim 32 (Previously Presented): A method of recording/reproducing data comprising: generating a plurality of error correction code (ECC) blocks of encoded data each of the ECC blocks having a predetermined size in row and column directions;

dividing each of the ECC blocks of the encoded data further in row and column directions to form a plurality of partitions, each partition having a predetermined unit in row and column directions;

alternately extracting data from the partitions from each of the ECC blocks so that each

of the ECC blocks is alternately and equally selected along diagonal paths;
generating a recording block based on extracted data from the partitions;
modulating the recording block; and
recording the modulated recording block on a medium.

Claim 33 (Original): The method as claimed in claim 32, wherein the interleaving of the data further comprises selecting an equal amount of the data from the partitions of each of the ECC blocks.

Claim 34 (Previously Presented): The method as claimed in claim 32, further comprising encoding input data with an error correction code (ECC) to generate ECC encoded data in the plurality of ECC blocks.

Claim 35 (Previously Presented): The method as claimed in claim 32, wherein the interleaving of the data comprises interleaving a predetermined number of bytes of data from each ECC block to generate the recording block.

Claim 36 (Original): The method as claimed in claim 32, wherein the dividing of the ECC blocks comprises dividing each of the ECC blocks into object blocks.

Claim 37 (Original): The method as claimed in claim 36, wherein the dividing of the ECC blocks further comprises dividing the object blocks into the partitions.

Claim 38 (Previously Presented): The method as claimed in claim 37, wherein the data size of each ECC block is $N1 \times N2$ bytes, where $N1$ and $N2$ are positive integers, d is a common divisor of $N1$ and $N2$, and the dividing of the ECC blocks into the object blocks comprises dividing each of the ECC blocks by d bytes in the column direction to generate $N2/d$ object blocks.

Claim 39 (Previously Presented): The method as claimed in claim 38, wherein the dividing of the object blocks into the partitions comprises dividing the object blocks into d portions in the row and column directions.

Claim 40 (Previously Presented): The method as claimed in claim 35, further comprising:

reading the modulated recording block from the medium;
demodulating the modulated recording block; and
deinterleaving the demodulated recording block in an order reverse to the interleaving of extracted data from the partitions prior to recording on the medium.

Claim 41 (Previously Presented): The method as claimed in claim 1, wherein a burst error is corrected by the interleaving the data.

Claims 42-47 (Cancelled):